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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/542,896	07/20/2005	Kazuya Okabe	T-1470 MP-YU5904-P-US	1789
802 PATENTTM.US P. O. BOX 82788 PORTLAND, OR 97282-0788	7590 11/25/2009		EXAMINER LEE, CYNTHIA K	
			ART UNIT 1795	PAPER NUMBER
			MAIL DATE 11/25/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

## Application No.

10/542,896

## Applicant(s)

OKABE ET AL.

## Examiner

CYNTHIA LEE

## Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 8-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF 298)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date: \_\_\_\_\_

***Response to Amendment***

This Office Action is responsive to the amendment filed on 7/16/2009. Claims 1-23 are pending. Claims 8-23 are withdrawn from further consideration as being drawn to a non-elected invention. Applicant's arguments have been considered. Thus, claims 1-7 are finally rejected for reasons of record and for reasons necessitated by applicant's amendment.

***Information Disclosure Statement***

The Information Disclosure Statement (IDS) filed 7/16/2009 has been placed in the application file and the information referred to therein has been considered.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugahara (JP 09-007591) in view of Hayashida (US 2001/0041292) and Katou (JP 2002-309327).

Sugahara discloses a hydrogen storage alloy comprising rare earth metal, nickel, and transition metal elements [0013, 0014]. It comprises a layer of nickel with a

thickness of 50-200 nm on the surface of the alloy [0017] formed by immersing a hydrogen storage alloy in an alkali solution [0016].

Sugahara discloses a hydrogen storage alloy electrode, but does not disclose a nickel-metal hydride battery per se, nor a positive electrode comprising mainly of nickel hydroxide and an electrolyte composed mainly of aqueous solution of alkaline metal hydroxide. Hayashida teaches a nickel-metal hydride battery, a positive electrode comprising mainly of nickel hydroxide [0238] and an electrolyte composed mainly of aqueous solution of alkaline metal hydroxide [0252] and a negative electrode made of hydrogen storage alloy [0244]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the negative electrode of Sugahara to the battery of Hayashida for the benefit of generating electrical power.

Sugahara discloses a layer of nickel with a thickness of 50-200 nm on the surface of the alloy, but does not disclose cracks on the surface of the alloy covered by the nickel layer. Katou teaches that cracks are formed on the hydrogen alloy during charge and discharge and if the cracks are not covered, capacity diminishes due to the exposure of the electrode to the electrolyte [0008], and thus teaches of forming the hydrogen storage alloy with cracks and covering the cracks and the surface of the alloy with a layer of nickel [0010]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to form cracks on the hydrogen storage alloy of Sugahara, as taught by Katou, prior to forming Sugahara's nickel layer for the benefit of protecting the hydrogen storage alloy from electrolyte exposure, as taught by Katou.

Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugahara (JP 09-007591) in view of Hayashida (US 2001/0041292) and Katou (JP 2002-309327) as applied to claim 1, further in view of Okada (JP 2002-256301).

Sugahara modified by Hayashida and Katou teaches all the elements of claim 1 and are incorporated herein. Sugahara modified by Hayashida and Katou does not disclose the mass saturation magnetization and the magnetic nickel content as claimed by the Applicant. Sugahara discloses that the thin layer of nickel is formed by immersing the alloy in alkaline hydroxide solution [0016]. The immersion temperature and time can be suitably decided in which the temperature is usually 80 C to 110 C. Sugahara thus clearly teaches that temperature and time of immersion into alkaline solution is a result effective variable. It has been held by the courts that discovering an optimum value or workable ranges of a result-effective variable involves only routine skill in the art, and thus not novel. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See MPEP 2144.05. Further, Okada teaches of immersion hydrogen storage alloy in alkaline hydroxide solution containing 30-80 wt% and heated at 90 C or higher. See Abstract. Okada teaches that the concentration of the alkaline solution and the temperature of the treatment are result effective variables, as stated in par. [0068]. It has been held by the courts that discovering an optimum value or workable ranges of a result-effective variable involves only routine skill in the art, and thus not novel. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See MPEP 2144.05.

The instant Specification supports that the limitations of claims 2-4 are met by wherein the alkaline solution has a specific gravity of 1.3-1.5, the alloy is treated

between 1-10 hours and a temperature between 80 C to boiling. Refer to the instant Specification pg 34, 1st full par., pg 42, 1st full par. and Tables 2 and 3 on pg 43. Thus, the limitations of claims 2-4 are inherent in the combination of Sugahara modified by Hayashida, and Okada. A reference which is silent about a claimed invention's features is inherently anticipatory if the missing feature *is necessarily present in that which is described in the reference*. In re Robertson, 49 USPQ2d 1949 (1999).

### ***Response to Arguments***

Applicant's arguments filed 7/16/2009 have been considered but are moot in view of the new interpretation of Sugahara and Katou.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cynthia Lee/  
Examiner, Art Unit 1795

/PATRICK RYAN/  
Supervisory Patent Examiner, Art  
Unit 1795